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AORTIC WALL COMPLIANCE RECOVERS DURING HEALING OF INTRA-MURAL HEMATOMA

ACC Poster Contributions
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Session Title: Thoracic and Abdominal Aortic Diseases
Abstract Category: 11. Peripheral Arterial/Carotid Disease/Aortic Disease
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Authors: *Christof Karmonik, Jean Bismuth, Cassidy Duran, Dipan J. Shah, Javier E. Anaya-Ayala, Mark G. Davies, Lucien Abboud, Alan B. Lumsden, The Methodist DeBakey Heart & Vascular Center, Houston, TX*

Background: To quantify changes in aortic wall compliance in patients (pts) with intramural hematoma (IMH) in order to improve the understanding of IMH and its healing process.

Methods: Three IMH patients presenting to our Acute Aortic Treatment Center underwent cine and phase contrast MRI (pcMR) upon initial presentation and at follow up intervals of up to 2 years. Aortic wall motion was quantified by maximum extension and contraction and absolute correlation (AC) of temporal average displacement with true lumen aortic flow using pcMR in axial orientation in IMH patients as well as 5 controls.

Results: IMH thickness diminished for all cases at follow-up: (#1: from 10.3 to 0 mm, #2 from 10 to 3.6 mm, #3: from 13.1 mm to 10 mm, average: 6.6 mm, figure 1). Wall compliance as measured by AC increased for case #1 (from 0.21 to 0.4 and 0.5) and #2 (from 0.54 to 0.73) reaching significance at FU 2 and FU 1, respectively. For case #3, AC was significant at presentation (0.87) which did not change at FU (0.62). Maximum contraction and extension varied between 5 mm and -3.1 mm, respectively. Maximum wall motion (sum of contraction and extension) was largest for all cases at FU. For controls, maximum extension was 2.5 mm, maximum contraction was -2.0 mm and AC was 0.74.

Conclusions: Significant recovery of wall compliance in aortic IMH is seen with IMH healing. Maximum extent of diseased wall motion increased with decreasing IMH thickness.

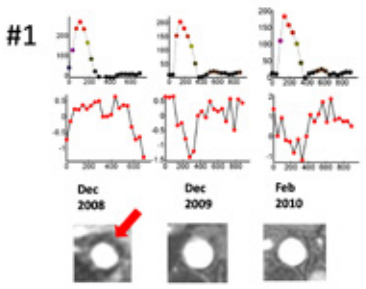

Figure 1: Aortic flow waveforms (first row, in ml/sec) and average wall motion (second row, in mm) together with axial cross section of aorta and IMH (third row). Arrow marks location where thickness measurements was taken. Table presents wall compliance (AC: absolute correlation coefficient, IMH thickness, maximum contraction and maximum extension)

Case	AC (p-Value)	thickness [mm]	dmin [mm]	dmax [mm]
#1/In	0.21 (0.2)	10.3	-0.9	4.6
#1/FU1	0.40 (0.08)	0	-2.5	2.4
#1/FU 2	0.50 (0.02)	0	-3.1	5.0
#2/In	0.54 (0.01)	10	-0.8	0.5
#2/FU	0.73 (1e-4)	3.6	-2.8	1.1
#3/In	0.87 (1e-4)	13.1	-1.3	1.7
#3/FU	0.61 (1e-3)	10	-2.9	1.1